

PRVPATENT- OCH REGISTRERINGSVERKET
Patentavdelningen

REC'D 27 APR 2004

WIPO

PCT

**Intyg
Certificate**

Härmed intygas att bifogade kopior överensstämmer med de handlingar som ursprungligen ingivits till Patent- och registreringsverket i nedannämnda ansökan.

This is to certify that the annexed is a true copy of the documents as originally filed with the Patent- and Registration Office in connection with the following patent application.



(71) Sökande AB Electrolux, Stockholm SE
Applicant (s)

(21) Patentansökningsnummer 0300989-1 ✓
Patent application number

(86) Ingivningsdatum 2003-04-04 ✓
Date of filing

Stockholm, 2004-03-31

För Patent- och registreringsverket
For the Patent- and Registration Office

Marita Öun

Marita Öun

Avgift
Fee

**PRIORITY
DOCUMENT**

SUBMITTED OR TRANSMITTED IN
COMPLIANCE WITH RULE 17.1(a) OR (b)

BEST AVAILABLE COPY

Case P-10219

Applicant: Aktiebolaget Electrolux, Stockholm

Device for a pole saw

Device for a pole saw for pruning trees or bushes comprising an elongated stiff tube extending from a drive unit to a remote chain saw head and incorporating drive shaft connected to an input shaft of a gear arranged in the chain saw head the gear being provided with an output shaft on which a sprocket wheel for driving a saw chain is arranged.

Pole saws of the above type are previously known but rather often such saws start to vibrate heavily when being used. This is due to the fact that the teeth of the chain get stuck in the material being cut. When sufficient amount of energy then has been accumulated in the elastic transmission system the teeth might suddenly leave hold of the material thereby initiating said vibrations. The vibration level can be influenced by many different factors such as the gear ratio between the drive engine and the chain drive, the torque and bending stiffness of the guide bar, the drive shaft, the oscillating mass of the engine and saw head, the position of the chain bar guide, the rotation direction of the engine and so on. Mostly these factors are difficult to change without creating other disadvantages.

It has been suggested to solve the problem mentioned above by mounting a vibration damper at the outside of the sprocket wheel. A disadvantage with such an arrangement is however that the width of the saw head increases compared to a conventional arrangement. Moreover, because the damper is rather heavy the weight distribution becomes worse in particular since the weight of the guide bar and the chain are positioned at the same side of the saw head. A further disadvantage is that the damper is an obstacle when replacing the chain or when removing the guide bar.

The purpose of this invention is to create a vibration damper which is a part of an improved integrated weight distribution system and which is not an obstruction when replacing the chain or guide bar. The device according to the invention also reduces the width of the saw head and serves as a protection for the gear housing if the chain should

come off the sprocket wheel. This is achieved by means of a device having the characteristics mentioned in the claims.

An embodiment of the invention will now be described with reference to the accompanying drawings on which Fig. 1 shows a pole saw in operating position, Fig. 2 is a perspective view of a saw head (without the guide bar and chain) which is a part of the pole saw whereas Fig. 3 is a horizontal section through the saw head in Fig. 2.

As appears from Fig. 1 the pole saw comprises a drive unit 10 such as an internal combustion engine or an electric motor that via an elongated stiff tube 11 is connected to a saw head 12 having a guide bar 13 on which an endless saw chain is arranged. The tube 11 encloses a drive shaft 14 that is driven by the drive unit 10 and is connected to an inlet shaft 15 of a gear transmission 16 that is enclosed in a gear housing 17. The gear housing is an integrated part of the saw head and is preferably made of light metal. An outlet shaft 18 of the gear transmission is supported by a bearing 19 and has an outer end on which a sprocket wheel 20 is secured. The guide bar 13 is in the usual way clamped to the saw head by means of a bar bolt 21 which can be loosened in order to move the guide bar in its length direction in order to tighten the endless chain supported by the guide bar.

The sprocket wheel 20 has a hub part 22 on which a vibration damper 23 is secured and rotates together with the sprocket wheel. The vibration damper 23 has a large mass and is preferably made of steel or sintered material and might as well be an integrated part of the sprocket wheel 20 or be supported by it. The vibration damper is placed at the inner side of the sprocket wheel 20 and serves together with the hub part 22 that surrounds the bearing 19 as an outer protection for the gear housing 17 if the chain should get out of engagement with the sprocket wheel. The position of the vibration damper on said side of the sprocket wheel also gives a far better weight distribution compared to an arrangement where the damper is placed on the other side of the sprocket wheel.

Claims

1. Device for a pole saw for pruning trees or bushes comprising an elongated stiff tube (11) extending from a drive unit (10) to a remote chain saw head (12) and incorporating a drive shaft (14) connected to an input shaft (15) of a gear (16) arranged in the chain saw head (12) the gear being provided with an output shaft (18) on which a sprocket wheel (20) for driving a saw chain is arranged **characterized in** that a vibration damper (23) is arranged between the gear (16) and the sprocket wheel (20).
2. Device for a pole saw according to claim 1 **characterized in** that the gear (16) is enclosed in a gear housing (17) and that the damper (23) serves as an outer protection for the gear housing.
3. Device for a pole saw according to claim 2 **characterized in** that the gear housing (17) is an integrated part of the saw head (12).
4. Device for a pole saw according to claim 2 or 3 **characterized in** that the gear housing (17) is made of light metal.
5. Device for a pole saw according to any of the previous claims **characterized in** that the sprocket wheel (20) is provided with a hub part (22) surrounding a bearing (19) for the output shaft (18).
6. Device for a pole saw according to any of the previous claims **characterized in** that the damper (23) is an integrated part of the sprocket wheel (20) or is supported by it.

Abstract (Fig.

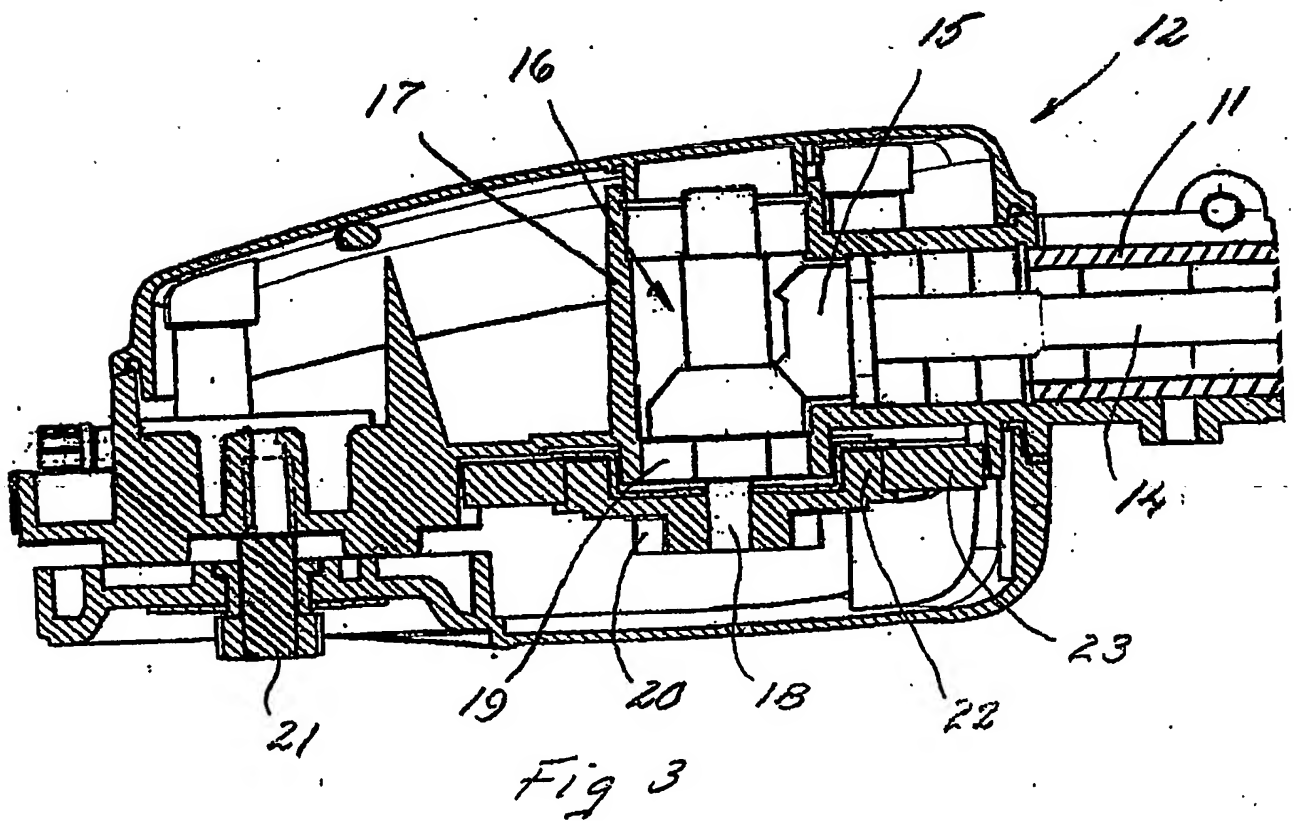
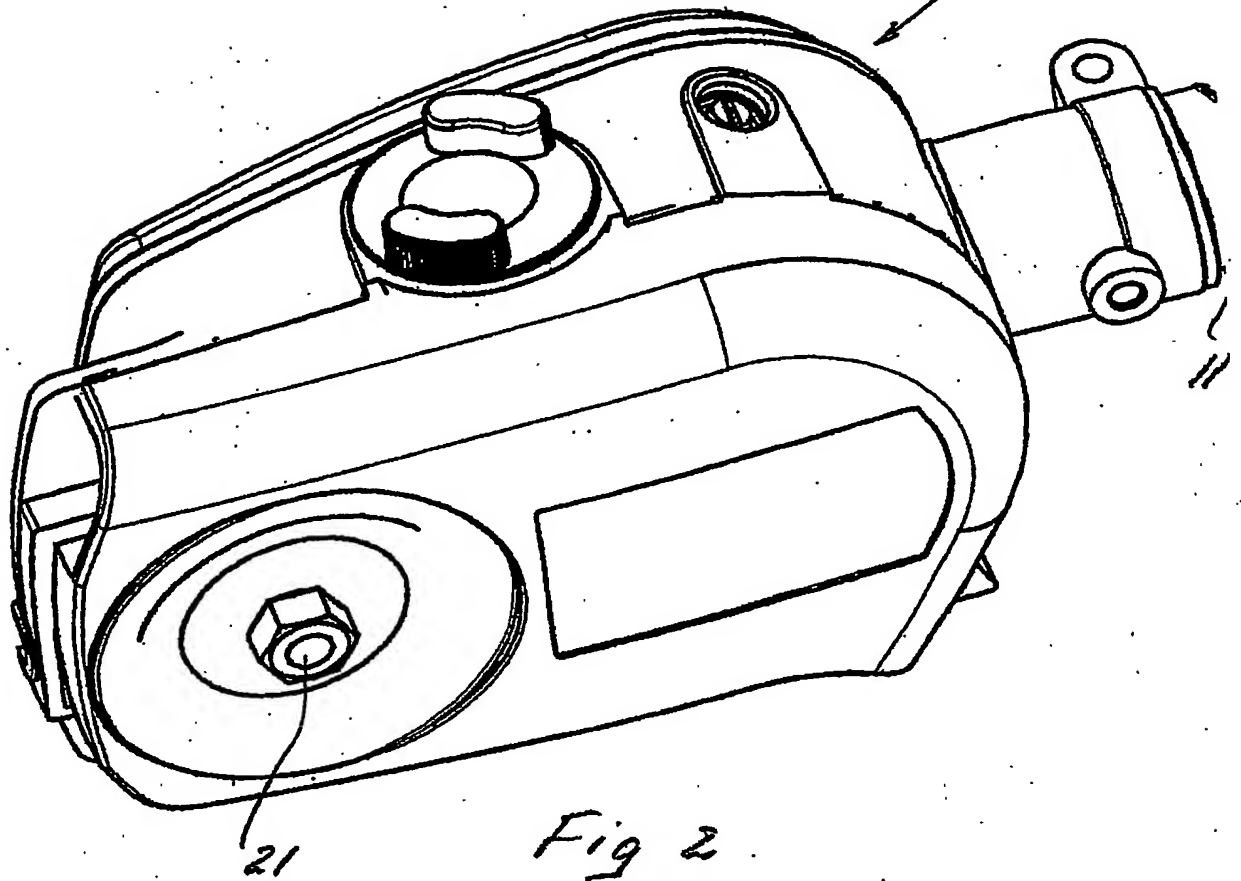
This invention relates to a device for a pole saw for pruning trees or bushes. The pole saw comprises an elongated stiff tube extending from a drive unit to a remote chain saw head (12) and incorporates a drive shaft (14) connected to an input shaft (15) of a gear (16) arranged in the chain saw head (12). The gear is provided with an output shaft (18) on which a sprocket wheel (20) for driving a saw chain is arranged. A vibration damper (23) is arranged between the gear (16) and the sprocket wheel (20).

FIG. 1



Fig 1

PRV0004-04



This Page is inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ BLACK BORDERS
- ☒ IMAGE CUT OFF AT TOP, BOTTOM OR SIDES
- ☒ FADED TEXT OR DRAWING
- ☐ BLURED OR ILLEGIBLE TEXT OR DRAWING
- ☐ SKEWED/SLANTED IMAGES
- ☒ COLORED OR BLACK AND WHITE PHOTOGRAPHS
- ☐ GRAY SCALE DOCUMENTS
- ☐ LINES OR MARKS ON ORIGINAL DOCUMENT
- ☐ REPERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY
- ☐ OTHER: _____

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images
problems checked, please do not report the
problems to the IFW Image Problem Mailbox**